resort to working with scrap of inferior value, and, as this material became dearer owing to tlie costs of carriage from further removed localities, finally to deal with an increase in the pig iron percentage in the charges. The excess of reducing agents which was thereby brought into the charges could, rationally, only be removed by means of corresponding additions of iron oxides, and one soon arrived at bringing this iron, oxide into the furnace simultaneously with the metal, so that it became active during the melting down. By moans of such artifice, one, of course, put out of reach observation of the details of the action, but one was enabled to obtain metal after melting clown exhibiting the same composition as a pig and scrap charge at the same stage of the process. Only thereby much larger quantities of slag were given rise to than in the pig and scrap process. One attributed a harmful influence to this and, therefore, sought to remove the slag as much as possible as soon as it showed above the molten charge. One thereby also arrived at diminishing the amount ol" slag which remained in the furnace so far that the finishing of tho charge was able to take place under somewhat like conditions to those usual in the pig and scrap process. Through such-liko modes of working the demonstration was brought about in many localities that the convertion into stool o! charges with larger percentages of pig iron, even of pig iron alone, in possible if oxygen in ore is used as an aid in adequate amounts. Nevertheless, the following difficulties wore given rise to thereby:—

1. It much damaged the basic structure, since holes frequently formed in the bottom, there always took place a very great cutting away of the banks, so that the hearth repairs required considerably more time and material.
2. Largo quantities of ore were required, and likewise the amount of limestone required increased, whereby the costs of the charge wore raised.
8. The melting-down period lasts much longer with the increase of pig iron and ore additions, and therewith total duration of the " heat" as well as the coal consumption and the wearing away of the acid structure of the furnace.

Owing to all these circumstances, the production of the